

1 Claims

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3 1. Filter element suitable for filtering electromagnetic
4 waves, in particular a bandpass filter or band-stop filter,
5 implemented also as a reflection filter or suchlike, con-
6 taining

- 7 - a dielectric, cylindrical resonator (1), and
- 8 - one or more lines (2, 3) which supply or, as the case
9 may be draw off electromagnetic waves to/from the di-
10 electric resonator (1);
- 11 - with said lines (2, 3) terminating in a contacting
12 structure (4, 4a, 4b);

13 c h a r a c t e r i z e d i n t h a t

- 14 - the lines (2; 3) together with their contacting struc-
15 ture (4, 4a, 4b) form part of a printed-circuit board;
- 16 - in that the resonator (1) is supported by said printed-
17 circuit board (6); and
- 18 - in that the resonator (1) is located spaced from the
19 contacting structure(4, 4a, 4b);
- 20 - with a recess (8) being provided in the printed-circuit
21 board (6) in which recess the resonator (1) is located
22 by means of a suitable securing means (7).

23

24 2. Filter element, where applicable according to Claim 1,
25 suitable for filtering electromagnetic waves, in particular
26 a bandpass filter or band-stop filter, implemented also as
27 a reflection filter or suchlike, containing

- 28 - a dielectric, cylindrical resonator (1), and
- 29 - one or more lines (2, 3) which supply or, as the case
30 may be draw off electromagnetic waves to/from the di-
31 electric resonator (1);
- 32 - with said lines (2, 3) terminating in a contacting
33 structure (4, 4a, 4b);

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2 - a retention area or cover (5) is provided in close prox-
3 imity to the contacting structure (4, 4a, 4b);
4 - in that the resonator (1) is held in place by the reten-
5 tion area or, as the case may be, cover (5); and
6 - in that the resonator (1) is located variably spaced
7 from the contacting structure (4, 4a, 4b);
8 - with a recess (8) being provided in the retention area
9 or, as the case may be, cover (5) in which recess the
10 resonator (1) is located by means of a suitable securing
11 means (7).

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13 3. Filter element according to Claim 1 or 2 characterized in
14 that the recess (8) is dimensioned in such a way as to en-
15 able the resonator (1) to be fitted or, as the case may be,
16 mounted in a self-centering manner.

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18 4. Filter element according to one of Claims 1 to 3 character-
19 ized in that an adhesive or silicon is used as the means
20 (7) for securing the resonator (1).

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22 5. Filter element according to one of Claims 1 to 4 character-
23 ized in that each line (2, 3) terminates in each case in a
24 separately embodied contacting structure (4a, 4b).

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26 6. Filter element according to one of Claims 1 to 4 character-
27 ized in that two or more lines (2, 3) terminate in a com-
28 monly embodied contacting structure (4).

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30 7. Filter element according to one of Claims 1 to 6 character-
31 ized in that the contacting structure (4, 4a, 4b) is embod-
32 ied at least in sections as sickle-shaped.

1 8. Filter element according to one of Claims 1 to 6 character-
2 ized in that the contacting structure (4) is embodied as an
3 annulus.

4

5 9. Filter element according to one of Claims 1 to 6 character-
6 ized in that the contacting structure (4, 4a, 4b) is embod-
7 ied as a circular-arc segment having a variable aperture
8 angle (α) less than 360° ; being in particular approximately
9 160° when there are two lines; being in particular approxi-
10 mately 110° when there are three supply lines; being in
11 particular approximately 75° when there are four lines.

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13 10. Filter element according to one of Claims 1 to 9 character-
14 ized in that the contacting structure (4, 4a, 4b) has lar-
15 ger dimensions than the cylindrical resonator (1).

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17 11. Filter element according to one of Claims 2 to 9 character-
18 ized in that the contacting structure (4, 4a, 4b) has
19 smaller dimensions than the cylindrical resonator (1).

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21 12. Filter element according to one of the preceding Claims
22 characterized in that the resonator (1) is oriented sub-
23 stantially to be centered relative to the contacting struc-
24 ture (4, 4a, 4b).

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26 13. Filter element according to one of the preceding Claims
27 characterized in that the resonator (1) has an operating
28 frequency above 18 GHz.

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30 14. Oscillator, in particular for radar systems, LMDS distribu-
31 tion services, or satellite receivers, containing a filter
32 element for filtering electromagnetic waves according to
33 one of the preceding Claims.